5.0 CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

5.1 CUMULATIVE EFFECTS

This section provides (1) a definition of cumulative effects, (2) a description of past, present, and reasonably foreseeable actions relevant to cumulative effects, (3) an assessment of the nature of interaction of the proposed action and alternatives with other actions, and (4) an evaluation of cumulative effects potentially resulting from these interactions.

5.1.1 Definition of Cumulative Effects

CEQ regulations stipulate that the cumulative effects analysis within an EA should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). Recent CEQ guidance in *Considering Cumulative Effects* affirms this requirement, stating that the first steps in assessing cumulative effects involve defining the scope of the other actions and their interrelationship with the proposed action and alternatives. The scope must consider geographic and temporal overlaps and must also evaluate the nature of interactions among these actions.

Cumulative effects are most likely to arise when a relationship or synergism exists between a proposed action and alternatives and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in close proximity to the proposed action would be expected to have more potential for a relationship than actions that may be geographically separated. Similarly, actions that coincide, even partially, in time would tend to offer a higher potential for cumulative effects.

To identify cumulative effects, this EA analysis addresses three questions:

1. Does a relationship exist such that elements of the proposed action might interact with elements of past, present, or reasonably foreseeable actions?

2. If one or more of the elements of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?

3. If such a relationship exists, does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

In this EA, an effort has been made to identify all actions that are being considered and that are in the planning phase at this time. To the extent that details regarding such actions exist and

the actions have a potential to interact with the proposed action in this EA, these actions are included in this cumulative analysis. This approach enables decisionmakers to have the most current information available so that they can evaluate the environmental consequences of the proposed action.

5.1.2 Past, Present and Reasonably Foreseeable Actions

This EA applies a stepped approach to provide decisionmakers with not only the cumulative effects of the proposed action but also the incremental contribution of past, present, and reasonably foreseeable actions.

5.1.2.1 Past Actions Relevant to the Proposed Action and Alternatives

Shaw AFB is an active military installation that undergoes continuous change in mission and in training requirements. This process of change is consistent with the United States Defense policy that must be ready to respond to threats to American interests throughout the world.

In 1996, a force structure change occurred at Shaw AFB that reduced the number of A/OA-10s from 39 to 18 Primary Aircraft Inventory (PAI) aircraft. The Air Force also increased the number of F-16s at Shaw from 54 to 60 Block 50 aircraft by the end June 1996 and built up to 78 PAI Block 50 aircraft by the end of August 1996. Sortie-operations in the Poinsett Range, two MOAs, and one MTR did not noticeably change as a result of the combined 1996 actions. Sortie-operations in two Warning Areas, three MOAs, and 24 MTRs increased slightly. Base personnel increased by a total of 97 from 5,892 to 5,989 as a result of these 1996 actions.

5.1.2.2 Present Actions Relevant to the Proposed Action and Alternatives

The base, like any other major institution, also requires occasional new construction, facility improvements, and infrastructure upgrades. Currently, Shaw AFB is completing a 14,534 square foot building to house the 28th Weather Squadron, and constructing a new 181,497 square foot Dining Facility. A 31,920 square foot Education Center is proposed for construction in 2002, with completion planned for 2003. EA's for these actions have been completed and Findings of No Significant Impact (FONSI) were issued.

5.1.2.3 Reasonably Foreseeable Actions that Interact with the Proposed Action and Alternatives

This category of actions includes Air Force actions that have a potential to coincide, either partially in time or geographic extent, with the proposed action. Information on these actions is included to determine whether these actions would, if implemented, incrementally affect environmental resources. These recently proposed actions include:

- The Air Force has proposed changes to the utilization of several existing airspace units under the management of the 20th FW in order to facilitate the completion of new training requirements. These changes include adjustments in the altitude of three MTRs

and extension of the operating hours for six MOAs. The three MTRs are VRs-087, -088, and -1060, which overlie counties in South Carolina, North Carolina, and Virginia. The proposal also increases the ceilings of each MTR to 6,500 feet AGL. The six MOAs involved in the extension of operating hours include the Gamecock B, C, D, and I MOAs and the Bulldog A and B MOAs. The Gamecock MOAs overlie counties in South Carolina, and the Bulldog MOAs overlie counties in Georgia. The proposal would extend the operating hours from 10:30 PM to midnight in Gamecock B, C, and D MOAs and both Bulldog MOAs. It would extend the operating hours from 11:00 PM to midnight in Gamecock I MOA. An EA was prepared in 2001 regarding these modifications resulting in a FONSI. Approval from the FAA is anticipated in late 2002.

- Shaw AFB proposes to establish a temporary training mission. To support this action, approximately 8,400 square feet of trailer space and 5,000 square feet of maintenance area would be needed. An additional 22 personnel would be needed to support the mission. This construction activity was environmentally assessed in 2002.

- Shaw AFB proposes to construct three Fighter Squadron Maintenance Facilities in FY 03 to provide space for administration, supervision, and training of personnel and storage of tools and supplies to support day-to-day flightline maintenance of fighter aircraft. The new facilities would total 36,000 square feet and expenditures are estimated at $6.8 million dollars. This project includes the demolition of five facilities totaling 41,000 square feet. This construction activity was environmentally assessed in 2002.

- Shaw AFB proposes to privatize on-base military family housing. This would involve conveying 1,702 housing units to a private contractor. The contractor would conduct renovation, demolition, and construction, over a seven-year period, resulting in a total of 1,447 military housing units. The demolition/construction would be conducted in phases in order to keep as many units as possible filled during the project. A Request for Proposal will be issued before the end of this calendar year. An Environmental Baseline Survey (EBS) has been completed and an EA is currently being prepared.

- Shaw AFB is currently considering construction of a Wastewater Treatment discharge pipe from Shaw to Wateree River. In order to stay in compliance for wastewater discharge, Shaw either has to build additional treatment facilities, or extend the end of the outflow pipe to the Wateree River. This will require additional pipeline for approximately three to seven miles. Environmental analysis for this project has not yet been initiated.

5.1.3 Analysis of Cumulative Effects

The following analysis examines how the impacts of the actions presented above might be affected by those resulting from the proposed action and alternatives at Shaw AFB, and whether such a relationship would result in potentially significant impacts not identified when the proposed action or alternatives are considered individually.

This analysis also considers the cumulative effects of Alternative A and Alternative B The No-Action Alternative. As identified in Chapter 4 of this EA, Environmental Consequences, effects of Alternative A would almost be identical to the proposed action and therefore it is evaluated together with the proposed action in the cumulative analysis. Alternative B, The No-Action Alternative, represents status quo conditions and would not represent any change from the existing environment.

No specific projects have been identified that would produce incremental impacts when added to other past, present, or reasonably feasible future actions. Shaw AFB is an active military installation that undergoes changes in mission and in training requirements in response to defense policies, current threats, and tactical and technological advances. The base, like any other major institution (e.g., university, industrial complex), requires new construction, facility improvements, infrastructure upgrades, and maintenance and repairs. All of these factors (i.e., mission changes, facility improvements, and tenant use) will continue to occur before, during, and after the proposed action if it is selected.

In 2001, a change in airspace utilization was evaluated in a separate EA and no significant impacts were identified. When this action is considered in conjunction with the proposed action no significant impacts are anticipated.

The other base actions affect very specific areas on-base and, for the most part, the scope of the actions is focused. Given that the proposed force structure change would not have a discernible effect within the base, the combined impacts of all actions would remain well below the threshold of significance for any resource category. None of these on-base actions would be expected to result in more than negligible impacts individually or cumulatively.

The cumulative effects of the proposed force structure change and these future actions would remain below the threshold of significance for airspace use and any other resource area.

5.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

NEPA requires that environmental analysis include identification of "...any irreversible and irretrievable commitments of resources; which would be involved in the proposed action should it be implemented." Irreversible and irretrievable resource commitments are related to the use of nonrenewable resource and the effects that the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural site).

For the proposed action, most resource commitments are neither irreversible nor irretrievable. Most impacts are short-term and temporary, or longer lasting, but negligible. Those limited

resources that may involve a possible irreversible or irretrievable commitment under the proposed action are discussed below.

Training operations would continue and involve consumption of nonrenewable resources, such as gasoline used in vehicles, and jet fuel used in aircraft. Use of training ordnance would involve commitment of chaff and flares. None of these activities would be expected to significantly decrease the availability of minerals or petroleum resources.

Personal vehicle use by the personnel continuing to support the existing missions would consume fuel, oil, and lubricants. The amount of these materials used would decrease slightly, however their use is not expected to significantly affect the availability of the resources.